REMARKS

Applicant respectfully requests the Examiner's reconsideration of the present application. Claims 2 and 14 have been cancelled. Claims 1, 8, 13, 15, 17, 18, 20, 21, 24 and 25 have been amended. No new claims have been added. Therefore, claims 1, 3-10, 12-13, 15-22 and 24-28 are presented for examination.

Claim Amendments

Applicant has amended the claims to more particularly point out what Applicant regards as their invention. No new matter has been added as a result of these amendments.

Rejections Under 35 U.S.C. §103(a)

Thuyen Le in view of Mogi

Claims 1-5, 12-17 and 24-27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Thuyen Le et al., "A new flexible architecture for variable length DC targeting shape-adaptive transform" ("Le") in view of Mogi et al., U.S. Patent No. 6,687,724 ("Mogi"). Mogi only qualifies as prior art under 35 U.S.C. §102(e) because its issue date is after Applicant's filing date. Accordingly, Applicant hereby reserves the right to swear behind Mogi in the subsequent prosecution of the present application. Applicant respectfully submits, however, that the present claims are patentable over the combination Thuyen Le and Mogi.

Thuyen Le discloses a 1D DCT architecture which employs a Canonical-Signed-Digit serial multiplication to reduce hardware resources. Mogi discloses an inner-

product operational unit that multiplies and accumulates source data on receiving a multiply and accumulate (MAC) instruction.

Independent claims 1,13 and 25, as amended, include the limitation that multiplication operations within a multiplication matrix are grouped for simultaneous execution. Applicants respectfully submit that neither Thuyen Le, Mogi, nor the combination disclose this limitation.

The Examiner has equated Applicant's claimed multiplication matrix [M] with Thuyen Le's permutation matrices $P_{k,N}$ of Equation (4). Thuyen Le discloses that the permutation matrices $P_{k,N}$ select the correct elements in d_N for multiplication. (Thuyen Le, p.1950, first column, line 30). As shown in Equation (4) of Thuyen Le, the elements of the permutation matrices $P_{k,N}$ only include either '1' or '0' elements; the permutation matrices $P_{k,N}$ do not include grouped multiplication operations. Furthermore, Figure 1 of Thuyen Le does not teach or suggest that the permutation matrices $P_{k,N}$ include grouped multiplication operations. In contrast, Applicant's claimed multiplication matrix [M] includes multiplication operations that are grouped for simultaneous execution.

Mogi is directed to a multiply and accumulate instruction, and does not teach or suggest a multiplication matrix [M] including multiplication operations that are grouped for simultaneous execution, as claimed.

Therefore, the combination of Thuyen Le and Mogi does not teach or suggest the limitations of independent claims 1, 13 and 25. Accordingly, Applicant respectfully submits that claims 1, 13 and 25, and claims 3-5, 12, 15-17, 24 and 26-27 that depend from them, are not rendered obvious by the combination of Thuyen Le and Mogi, and respectfully request the withdrawal of the rejection of the claims.

Thuyen Le in view of Mogi and Huang

Claims 6-8 and 18-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Thuyen Le in view of Mogi and further in view of Huang, U.S. Patent No. 5,610,849 ("Huang"). Applicant respectfully submits that the present claims are patentable over the combination Thuyen Le, Mogi and Huang.

Claims 6-8 depend from independent claim 1, and claims 18-20 depend from independent claim 13. Independent claims 1 and 13, as amended, include the limitation that multiplication operations within a multiplication matrix are grouped for simultaneous execution. As discussed above, the combination of Thuyen Le and Mogi does not teach or suggest this limitation. Applicant respectfully submits that Huang also does not teach or suggest the missing elements.

Huang discloses a 2-D DCT/IDCT circuit consisting of two 1-D processors, which performs two successive 1-D DCT/IDCT processes to achieve a 2-D transformation. However, Huang does not teach or suggest that multiplication operations within a multiplication matrix are grouped for simultaneous execution, as claimed. Therefore, the combination of Thuyen Le, Mogi and Huang does not teach or suggest the limitations of independent claims 1 or 13. Accordingly, Applicant respectfully submits that claims 6-8 and 18-20 are not rendered obvious by the combination of Thuyen Le, Mogi and Huang, and respectfully request the withdrawal of the rejection of the claims.

Thuyen Le in view of Mogi and Smith

Claims 9-10, 21-22 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Thuyen Le in view of Mogi and further in view of William Smith, "Subword extensions for video processing on mobile systems" ("Smith"). Applicant respectfully submits that the present claims are patentable over the combination of Thuyen Le, Mogi and Smith.

Claims 9-10 depend from independent claim 1, claims 21-22 depend from independent claim 13, and claim 28 depends from independent claim 25. Independent claims 1, 13 and 25, as amended, include the limitation that multiplication operations within a multiplication matrix are grouped for simultaneous execution. As discussed above, the combination of Thuyen Le and Mogi does not teach or suggest this limitation. Applicant respectfully submits that Smith also does not teach or suggest the missing elements.

Smith discloses a micro-SIMD execution model and Matrix Math Extensions (MMX). However, Smith does not teach or suggest that multiplication operations within a multiplication matrix are grouped for simultaneous execution, as claimed. Therefore, the combination of Thuyen Le, Mogi and Smith does not teach or suggest the limitations of independent claims 1, 13 or 25. Accordingly, Applicant respectfully submits that claims 9-10, 21-22 and 28 are not rendered obvious by the combination of Thuyen Le, Mogi and Smith, and respectfully request the withdrawal of the rejection of the claims.

Conclusion

Applicant respectfully submits that in view of the amendments and discussion set forth herein, the applicable rejections have been overcome and the pending claims are in condition for allowance.

If the Examiner determines the prompt allowance of the claims could be facilitated by a telephone conference, the Examiner is invited to contact Scott Heileson at (408) 720-8300.

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due. Furthermore, if an extension is required, then Applicant hereby requests such extension.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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Jeffery Scott Heileson
Reg. No. 46,765

12400 Wilshire Blvd.
Seventh Floor
Los Angeles, CA 90025
(408) 720-8300